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The Effect of the Project Manager Certification Process on the Development of Project Management - A Croatian Perspective

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Abstract

The paper presents a fundamental analysis of the effect of the certification process on project management as a profession. Through the primary goal of this paper, an analysis of the effects on those individuals and enterprises in Croatia that encourage the need for certification in project management is shown, and a comparison with benchmark countries by development of project management is shown. The specified breadth of the analysis was supported by the use of different methodological approaches - quantitative and qualitative, and the gathered information will serve for further analysis and the development of project management.

Keywords: Certification process; project manager; project management; profession; motivation; benchmark; research

1. Introduction

Project management has been developing continuously since the 1950's. In the face of ever-greater business challenges, numerous methodologies and techniques have been developed through the years for use in project management. Furthermore, numerous associations and institutes have been founded throughout the world, various educational programs have been started, professional conferences are held and articles published, all with the goal of more successful project management. Successful project management includes integration and coordination between tasks, people, organizations and resources in

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order to attain the expected result. The true success of project management is represented by the acceptance of its results by interested project parties (CAPM-CERT, 2008).

Influenced by the rapid development of technology and society as a whole, competition is becoming ever fiercer and projects are becoming ever more complex, which in itself raises the expectations for project outcomes. Eleven years ago, Harvard Business School (2001) provided a brief portrait of the modern business process, "Business today is all about completing projects faster, cheaper and better." If project management does not adjust to external influences, or if project managers are unable to handle the situation, whether due to a lack of experience, knowledge or skills, the scope of the project can breach its set framework and, in the end, not meet the expectations of project stakeholders.

Research into monitoring of project success and realization continuously shows unsatisfactory results on a global level. A multi-year analysis of project management in German firms performed by Groeger (2004) provided a loss figure from insufficient project management of EUR 150 billion/yr. in the observed period. This analysis confirmed that project efficiency was at 43%, while the value of project efficiency was only 13%. Efficiency was considered to be strategic decision-making on the type of project to be carried out, and operative project management was observed in the context of efficiency. Research carried out within a community of project managers in the UK (Arras People, 2010) showed that 41% of the sample group had taken part in unsuccessful projects. The conclusions of analyses of the IT sector point to the fact that great project managers can save poor projects, a fact reflected in an increase of business demand for certified project managers from 16% in 2004 to 29% in 2006 (The Standish Group, 2007).

Today, with processes becoming more and more complex and resources and deadlines ever shorter, the basic success factor has become investment into human resources. Assuming that a sufficient number of methodologies and techniques for efficient application in project management exist today, and that responsibilities are harmonized with competences within an organization, the focus of success in project realization is being aimed at project manager. In order for a project manager to successfully and efficiently perform all of his functions, he must be experienced, knowledgeable and skilled - in other words, he should be competent, and competence is proven with certificates.

This paper will detail research carried out as part of a masters thesis (Uhlir, 2001) seeking an answer to the question of how the project manager certification process influences the development of project management.

2. Project manager certification

In order for project managers to successfully and effectively perform all of their functions, they must be experienced, knowledgeable and skilled - in other words, they must posses competence, and personal competence is proven through certification. Of course, a certificate cannot guarantee an individual's success, but it certainly is a significant indicator and tool for differentiation. The Institute for Credential Excellence (2010) defines certification as follows: "Certification represents a confirmation of personal, individual professional competences." The conditions of certification are vital to the credibility of the certification process. To this end, a number of world standards have been developed, of which the most widespread fall within the frameworks of ANSI (American National Standards Institute) and ISO (International Organization for Standardization). Certification carried out in Croatia by international organizations for project management IPMA and PMI is in accordance with ISO standard 17024. This international standard serves as the basis for the recognition of bodies that carry out personal certification and their certification programs in order to enable their acceptance on both the national and international level. To ensure that certifying bodies function consistently, comparably and reliably, ISO 17024 (2003) prescribes terms for: terminology and definitions used; certifying bodies themselves; individuals who

work within the scope of certifying bodies; and certification processes.

As with any other verification of knowledge and skills, there exist levels and ranges within the project manager certification process. The candidate selects his own level according to prescribed conditions, and range is attained during the verification process. In any case, verification is carried out in a manner that excludes subjective evaluation to the highest possible extent and evaluates the candidates' characteristics. In the spirit of certification, competences represent a demonstration of the ability to apply knowledge and skills, and where necessary, to display personal characteristics according to a defined certification schema (ISO 17024, 2003). Through their professional experience, project managers attain competences through experience and training. Because of the nature of the tasks project managers carry out throughout their careers, the three above-mentioned processes are repeated cyclically. In other words, there is a need for constant training, additional work experience and recertification.

3. Project management as a profession

It is a natural aspiration to hone one's occupation to the level of a profession. Many professions developed out of crafts and trades, and through history attained the status of a profession through development and social recognition. According to the theory of the sociology of professions (Sporer, 1990), occupations tend towards routine, and routine results in an increase in the quality of work. Through history, various authors have applied various methodological approaches in the research of professions. An example of a structural analysis is found in the work of sociologist Greenwood (1957), who provides the following necessary characteristics of a profession: systematically integral theory; professional authority; institutional security; an ethical codex; a distinct sub-culture.

Structural analyses and the determination of characteristics served to separate professions from other occupations, and thus provided protection and elitism for members of professions. Wilensky (1964) elaborates the process of occupational professionalization, and Friedson (1986) researches the transfer of knowledge and relationships of knowledge and power in professions. Nolin's scientific research (2008) begins with a search for a new theory of professions, positing a question on society's need for professions, and answers that society most needs quality in all processes. After an extraction of the basic problems left unsolved by earlier theories and analyses, Nolin's functional analysis provides answers and defines the fundamental characteristics an occupation should have to attain the status of a profession: at least three years of academic education; life-long learning; the existance of professional organizations. Attaining these characteristics is possible for every occupation through the professionalization process, or rather through the process of increasing operational quality. Such an approach is highly rational. Only what is important is sought after, and that is quality.

It can be concluded that there is no reason for the number of professions not to increase. The more occupations attain quality operational conditions, the more society as a whole will advance. Project management could serve as a typical example of a profession for the 21st century. Such a claim arises on one hand from the definition of a project as an undertaking with expense and time limits that must attain a specific result according to demands and quality standards (CAPM-CERT, 2008). The accent in projects is placed on non-permanence, limited resources and quality demands. On the other hand, today's society functions in real-time (Ridderstrale & Nordstrom, 2002) and is filled with turbulence. The reasons for which project management could be a profession are its fund of knowledge and the methods in which project managers are trained (Pant & Baroudi, 2008). After the conducted analysis of theories of professions and an overview of questions concerning the professionalization of project management, it can be concluded that project management is not a profession, but is on the path towards professionalization, and through additional efforts can become a profession (Uhlir, 2011).

4. The goals and methodology of the empirical research

The expected scientific contribution of this research is founded in fundamental analysis of the influence of the certification process on project management as a profession. Through the basic goal of the research, an analysis of the influence of individuals and organizations that encourage the need for certification in project management in Croatia was also attained, and Croatia was ranked according to its level of project management development in relation to neighbouring states and those with traditionally developed project management. Operatively, a cross-section approach was applied in the research, which identified a population, selected a representative sample, and collected data.

Considering that part of the goal of this research was established with the necessity of finding answers to the questions *how much* and *where*, the theory of positivistic determinism was applied to this part alongside a quantitative methodology (Creswell, 2003). A survey was created containing a short introductory text and 15 questions, grouped into three groups:

- the first 9 questions were of general statistical character and open-ended;
- the following 3 statistical questions were closed-ended with an ordinal scale (multiple choice, for better data comparison);
- and the final 3 questions were open-ended to gather thoughts and opinions of the survey respondents.

The survey was sent via e-mail to available addresses (members of IPMA and PMI) and placed on an internet portal for project managers (Moj projekt). The total observed population (in the moment of analysis), which consisted of individuals who work in project management in Croatia, was a final group of N=790 members (recognized and available). A total of n=80 individuals responded to the survey of the available total of N=790, representing a fraction of f=0.101. The attained sample of n=80 individuals represents a simple random sample, with equal chance given to all members of the population, and with $n>30$ and $f\geq 0.05$, it can be considered a representative sample for the observed population.

For the second part of the investigation goals, in which it was necessary to provide answers to the quesitions *how* and *in what manner*, constructivist theory with qualitative methodology was applied (Creswell, 2003). Part of the data for the qualitative analysis was attained using a survey which, aside from direct questions for quantitative analysis, contained open-ended questions in which opinions and thoughts were collected. In the qualitative analysis the collected opinions and thoughts were codified, categorized and logically analyzed, and the results were mapped. However, the core of the qualitative part of the research were semi-structured, selective interviews. These were analyzed according to recognized interest groups, along with a codification of all significant concepts for the established research goal, after which distinguishing concepts were synthesized according to the given framework. Four interest groups were identified for interviewing: certified project managers; business representatives (CEO); those involved in the education of project managers; uncertified project staff. Alongside the four basic groups identified, an attempt was made to attain a typical sample, which was to encompass the following: small and large businesses; national and multinational companies; dominant fields; multiple levels of education. The size of the interview sample was determined selectively according to the relevancy of the interviewee. The characteristics of qualitative research is a focus on the depth of a sample as opposed to its breadth, including even unitary samples (N=1) carefully selected in order to shed light on questions in the research (Patton, 2002). The initial plan foresaw between 3 and 5 interviewees for each group, or a total of 12 to 20 interviewees. It was considered that three interviewees from each of the above-mentioned group would form a typical sample of the population formed according to a highly-specialized quota of those who either directly or indirectly deal in project management, and that all four categories would be encompassed. During the interview process, additional individuals were identified from specific groups who could add an additional perspective to the research, and were included into the process. In the end, the interview process was concluded with 15 interviewees.

5. Research results

During the first step of the research, a proof of the statistical significance of the sample was performed, and a demographic statistical picture of project managers in Croatia was created. During the following step, at the conceptual level, the main hypothesis of the paper - *Project manager certification processes have an impact on the development of project management in Croatia*, was reduced to an independent variable, *the certification process*, and a dependent variable, *the development of project management*. After this, these variables were analyzed through available literature until their final synthesis in empirical research. Through the basic goal of the research, an analysis of the influence of individuals and organizations that encourage the need for certification in project management in Croatia was also attained, and Croatia was ranked according to its level of project management development in relation to neighbouring states and those with traditionally developed project management.

5.1. Impact of the certification process

In order to attain the goal of the research - research in what way the project manager certification process impacts the development of project management in Croatia, indirect data gathering was carried out. The data sought after for research cannot be seen anywhere, it can be collected from interviews, but not through direct questions, since such questions would be too specialized and theoretical. Interviewees were asked about two separate processes: the certification process and the development of project management as a profession. The opinions and thoughts of the interviewees are concerned, and as such cannot be quantified. For the above-mentioned reasons, solid research was planned along with the use of an interview. Questions for the interviews were composed with adjustments for different groups of interviewees, and the interview process was carried out with semi-structured questions. Semi-structured questions allow the focus to be placed on important elements in the interview and thus save time, as well as enabling a deep conversation at the moment when the interviewer detects a new, potential source of data.

After a synthesis of answers through semi-structured interviews, and a causal conclusion, opinions outlined in the literature became clearly defined. It was recognized that the certification process affects:

a) The education process in project management
   The appearance of project management organizations began the process of project manager certification. What every certification process requires of its candidates is knowledge and skills in accordance with the level of the applicable certificate. In order for candidates to prepare for testing, they intensively attain knowledge and skills through education/training processes. In this way, the need for all forms of project management education develops, which leads to competition and the aspiration towards better service. For these reasons, IPMA and PMI introduced their registered education programs (REP and RTC).
b) The quality improvement process in project management
   Certification by international organizations transfers positive, tested knowledge and experiences gathered across the world into the everyday business processes of project managers. Furthermore, through their positive action, project managers transfer their knowledge and skills to their work environment, thus forming the preconditions for quality improvement in project management in general.
c) The project management professionalization process
   Occupations aspire to become professions, and the path they travel is called professionalization. Professions provide quality services to customers and adequate compensation and social status for the service providers. In order to attain quality of service, it is necessary to identify those service providers

who have the preconditions for attaining quality, and these are competences such as knowledge and skills. This identification process is carried out through certification. Certification represents one of the more important conditions for the professionalization of project management. According to Nolin's observations (2008), the certification process also includes recertification or periodical renewal of certificates, which represents the second condition for professionalization - life-long learning. The existence of an ethical codex (dictated by organizations) accepted by every project manager upon application for certification is foreseen by Nolin as the third condition for professionalization

It follows that the certification process influences the development of project management indirectly through three interprocesses: the education process, the quality improvement process, and the professionalization process. Simultaneously, as shown in Figure 1, education influences quality, and quality influences the professionalization of project management, while quality is located in the center (Uhlir, 2011).

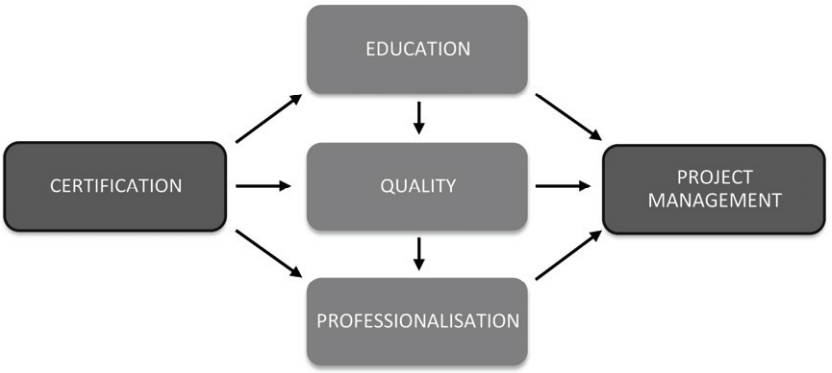

Fig. 1. The effects of the certification process on the development of project management

5.2. Influences on individuals and organizations that promote the need for certification

Considering that two groups (individuals and organizations) whose influences were investigated in this part of the research, the analysis has also been divided into two parts. For each part, an analysis has been performed through open-ended questions in the survey, and partly through the semi-structured interviews.

After an analysis of the open-ended questions from the survey and codification and grouping of motives for certification, the frequency of individual motives and the direction of the synthesis of answers became visible. In first place is motive - *improvement of personal competence* (29 occurences). Such a high result speaks to the strong wishes of the observed individuals to improve their business skills. Comparing next ranking motives - *formal proof of competence* (20 occ.) and *gaining personal competitive advantage* (13 occ.), it can be concluded that these are all the same motive stated differently, since the aim of formal proof of competence is to rise above the crowd, and in such a manner to *gain personal competitive advantage*.

As motives - *prerequisite for advancement* (4 occ.) and - *material gain* (2 occ.), were ranked quite low in frequency, it can be concluded that *gaining personal competitive advantage* serves for the horizontal advancement of managers and/or for self-confirmation. Horizontal advancement and self-confirmation come to the forefront as motivators in cases where a manager cannot advance vertically, or rather when a manager has reached the highest possible level of advancement. This research has shown that intrinsic motivators are dominant in Croatia: self-promotion, self-motivation, and self-confirmation. These

intrinsic motivators are part of self-determination theory (Gagne & Deci, 2005). It follows from this analysis that extrinsic motivators are nearly entirely missing - i.e., external motivators such as direct material gain from project manager certification in Croatia rarely appeared, which is in accordance with the situation on the ground. Project management in Croatia has not yet attained full recognition and is not yet valued as it is in other parts of the world. The analysis of interviews confirmed the analysis carried out through the survey.

In the survey, project managers pointed out the importance of certification in their organizations in 61% of answers, and the elementary influences on the decision to certify project managers appeared through the interviews - the survival and advancement of enterprises on the market. Enterprises recognized the crucial value brought by additional investment in employees, i.e. increasing intellectual capital. This type of investment especially relates to two components of intellectual capital - human capital and structural capital, since, in addition to the education of project managers, the business procedures and methodology of project management are also adopted. All of the above relates to organizations with project managers, which corresponds to the experience described by Kerzner (2004), that not one enterprise that adopted the work methodology of project mangament later abandoned it.

5.3. Croatia's position according to the level of development of project management

An analysis of a group of countries was performed through characteristic parameters. The intent of the selection of countries was to compare neighbouring countries, followed by countries that recently joined the EU, followed by states that have long been part of the EU and are known for their level of project management development. Eleven countries were selected for analysis, of which 8 are from the CEE region according to a study by Roland Berger (2009), with the addition of 3 developed countries from the EU, all of which were compared to the position of Croatia:

- Slovenia, Czech Republic and Hungary - developed countries within CEE;
- Poland, Romania and Ukraine - countries with development potential;
- Croatia, Serbia and Bulgaria - countries that must make further effort;
- Ireland, Austria and Germany - developed EU countres.

For the selected benchmark countries, data was collected that served in an analysis and positioning of Croatia:

- population (IMF, 2011), used to show the relative number of certified individuals;
- number of certified project managers (IPMA; PMI, 2011), which served as the measure of development of project management by country (indirect but measurable). The influence of the certification process on the development of project management is visible from section 5.1;
- gross domestic product - GDP (IMF, 2011), selected as a standard indicator of the development of a country's economy;

After the performance of the statistical analysis, the following order of states according to their level of development of project management was obtained: 1. Austrija; 2. Ireland; 3. Germany; 4. Croatia; 5. Slovenia; 6. Czech Republic...

However, according to the economic indicator - GDP, the order of states takes on a different appearance: 1. Ireland; 2. Austria; 3. Germany; 4. Slovenia: 5. Czech Republic; 6. Croatia...

In order to give this positioning yet another dimension, data indicating the economic development of these countries, GDP, was connected to the level of development of project management, the number of certified project managers (per capita), and a two-variable system was established. After logarithmic computation of the values of both variables (Table 1), a correlation coefficient (r=0.812) was defined using the available data, which showed strong correlation between the two observed variables. A regression line was then determined, by means of which further graphical and analytical examination

determined a connection between the economic development of a country and its level of development of project management. Following this, a comparison of the selected 11 countries was performed (Figure 2). Considering that economically better-developed countries also had better-developed project management, it is concluded that the development of project management is influenced by economic development. It is simultaneously apparent that those countries from Figure 2 located beneath the regression line have an excess of project managers according to their GDP, which is certainly not a bad indicator, but rather points to a certain disharmony between the economic development of these countries and the number of individuals trained for project management.

Table 1. Representation of benchmark parameters

No.	country	cert/pop (mil.pop.)	GDP ($/pop.)	LOG cert/pop	LOG GDP
1.	Austria	981,2	43.723,317	2,991769416	4,640713102
2.	Ireland	461,5	45.642,494	2,664207898	4,659369367
3.	Germany	249,5	40.511,825	2,397030814	4,607581808
4.	Croatia	109,3	13.527,658	2,038539681	4,131222615
5.	Slovenia	106,6	23.008,587	2,027947932	4,361889949
6.	Czech Republic	87,3	18.721,626	1,940965329	4,272343565
7.	Poland	45,0	11.521,637	1,652960473	4,061514188
8.	Hungary	33,5	13.210,402	1,524995047	4,120916034
9.	Serbia	26,3	5.262,189	1,419627689	3,721166442
10.	Ukraine	25,2	3.002,800	1,401004129	3,477526407
11.	Romania	14,3	7.390,707	1,126718672	3,868685985
12.	Bulgaria	5,4	5.954,724	0,733745351	3,774861637

Fig. 2. Representation of parameter regression of cert/pop and GDP

6. Conclusion

This work describes the fundamental analysis of the influence of the process of project manager certification on the development of project management in Croatia. Through the decade since the initiation of project manager certification in Croatia, this research has for the first time analyzed elements that provide a picture of the level of development of project management in Croatia: processes, influences, relationships, opinions, demographics, and positioning. The breadth of this analysis is supported through the use of various methodological approaches, quantitative and qualitative, the use of which became logically apparent from the research goals, and according to which the theoretical framework of the research was chosen.

The qualitative analysis and synthesis and the causal processing of data led to the conclusion that the process of project manager certification influences the development of project management indirectly through influences on three inter-processes: the education process, the quality improvement process, and the professionalization process. Aside from this, the research has shown that the education process also influences quality, and that quality influences the process of project management professionalization. Altogether, each of them positively influences the development of project management from its own perspective, and in the centre lies quality.

The auxilliary analysis and indicators obtained on the exclusively intrinsic motivators for certification, and benchmark parameters present a picture of the current status of project management in Croatia, and are usable for further research and for the advancement of project management in general.

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